

Express Terms  
and  
Purpose and Rationale Statement  
for Work Group 9:M Occupancies  
Section 704.5

**EXPRESS TERMS**

**704.5 Fire-resistance ratings.** Exterior walls shall be fire-resistance rated in accordance with Tables 601 and 602. The fire-resistance rating of exterior shall be rated for exposure to fire from both sides.

**PURPOSE AND RATIONALE STATEMENT**

**(SFM)** The purpose of this proposed amendment is to reasonably maintain the current level of fire/life safety provided by the CBC by requiring all exterior walls to have their required fire-resistance rating determined based on fire tests conducted with both sides of the wall independently tested in the ASTM E119 fire test method regardless of the fire separation distance. Presently, the IBC only requires this type of fire testing to be done if the fire separation distance is 5 feet or less.

This proposed amendment will also address concerns about significant seismic events followed by multiple fires coupled with the inability of the fire department to gain rapid access, or even any access, to buildings involved in those fires and the lack of adequate water supplies due to ruptured water mains. The proposed higher fire resistance ratings for exterior walls will help to contain and control such fires and prevent them from spreading to adjacent buildings. The exterior walls in those cases need to be able to not only contain a fire within the building of origin, but also to resist a fire exposure from an adjacent building, even if the fire separation distance is greater than 5 feet (but less than 30 feet) where exterior walls are required to have a fire-resistance rating. This will help to prevent conflagrations even if the fire department is unable to get to the scene because of blocked access or lack of adequate equipment or personnel caused by the excessive demands of a significant earthquake.

This amendment is even more critical for exterior bearing walls which, obviously, are also required to structurally support the buildings and maintain themselves in place while resisting fire exposure. Not only are they structurally critical but they are also serve to prevent fire spread from building to building. However, they may be exposed on the exterior by an interior fire breaking out of a door or window of an exterior wall, exposing the exterior wall to flame plumes on the outside while the interior side is being exposed to the same fire. Similarly, if an adjacent building exposure fire breaches a

door or window opening in the exposed building, the fire would not only be exposing the exterior of the wall but also the interior as the fire gains a foothold within the building.

Requiring the exterior walls to be fire tested to resist fire exposure from both sides, regardless of the fire separation distance, would greatly improve the ability of exterior walls to remain in place and resist fire exposure while maintaining their structural integrity, even where fires are uncontrolled and the fire department does not have the ability to assist in fire containment during major earthquake disasters.

It is also important to note that the IBC allows unprotected openings in exterior walls where the fire separation distance is greater than 5 feet for nonsprinklered buildings and where the fire separation distance is greater than 3 feet for sprinklered buildings. Whereas, the California Building Code (CBC) only allows unprotected openings in most cases where the fire separation distance is greater than 20 feet for other than Types II and V construction where the fire separation distance is greater than 10 feet. The CBC does not allow any openings for fire separation distances less than 5 feet. Thus, there is more potential under the IBC for a fire to spread from one building to another through unprotected openings in fire-resistance rated exterior walls which could also involve fire exposure to both sides of the exterior wall. Such situations indicate that the exterior walls should have their fire-resistance ratings determined based on fire test exposures from both the interior side and the exterior side as proposed by this amendment.